

Claims

1. Lens implant (12) for a placement into a posterior portion (3b) of an intracapsular space (3) after removal of a native lens body (2) from a lens capsule 13 of an eye,

wherein the lens implant (12) is formed of one part and manufactured from suitable non-cellular structural transparent material,

10 wherein the lens implant (12) is dimensioned to keep an anterior portion (3a) of the intracapsular space (3) free of non-cellular structural material,

wherein the lens implant (12) is devoid of any further part formed by non-cellular structural material or components thereof,

15 wherein the lens implant (12) comprises at most 40% of a volume of the native lens body (2), which was removed or of the volume of a native lens body (2) with an average size, and

20 wherein the lens implant (12) has a convex posterior surface with a curvature which is shaped to fit a posterior inner surface (13b) of the capsule (13).

2. The lens implant (12) according to claim 1, wherein the lens implant (12) is dimensioned to comprise at most 35%, 30%, 25%, 20%, 15%, 10%, 5% or 2% of a volume of the native lens body (2), in particular a volume of at most 120 μ l, 110 μ l, 100 μ l, 90 μ l, 80 μ l, 70 μ l, 60 μ l, 50 μ l, 40 μ l, 30 μ l, 20 μ l or 10 μ l.

30 3. The lens implant (12) according one of claims 1 or 2, wherein the radius of curvature of the posterior surface of lens implant (12) is in a range of 4 to 8 mm, or 4.6 to 7.5 mm or 5 to 7 mm or around 6 mm.

35 4. The lens implant (12) according to one of the previous claims, wherein a maximal diameter (14) of

the implant (12) at most equals the length of an equatorial diameter (5) of the native lens (1) or

wherein the maximal diameter (14) of the implant (12) measures at most 98%, 95%, 90%, 80%, 70%, 60%
5 or 50% of the equatorial diameter (5) of the native lens (1) or wherein the maximal diameter (14) of the implant (12) measures in a range with an upper boundary of 5 to 12 mm, in particular 11, 10, 9, 8, or 7, or 6 mm.

10 5. The lens implant (12) according to one of the previous claims, wherein the maximal diameter (14) of the implant (12) measures at least 50%, 60%, 70%, 80% or 90% of the equatorial diameter (5) of the native lens (1) or wherein the maximal diameter (14) of the implant (12)
15 measures in a range with a lower boundary in a range of 3 to 7 mm, in particular 3, 4, 5 or 6 mm.

6. The lens implant (12) according to one of the previous claims, wherein the transparent material is
20 selected to be deformable, allowing the implant (12) to be introduced into the intracapsular space (3) in a folded or rolled-up state through an opening in the lens capsule (13), wherein the largest diameter of the opening measures in the range of 0.5 to 4 mm, in particular between 0.5 and 3 mm, more particularly less than 3, 2, 1.5
25 or 1 mm.

7. The lens implant (12) according to one of the previous claims, wherein an anterior surface of the
30 implant (12) is also convex or wherein the anterior surface is plan or concave.

8. The lens implant (12) according to one of the previous claims, wherein it is dimensioned and shaped
35 to provide a refractive power suitable for vision adapted to infinity, in particular with a refractive power adapt-

able to the dimensions of the eye in a range from -20 diop-
tre to +60 dioptre including no refractive power corre-
sponding to 0 dioptre.

5 9. Capsule filling composition (15) for use
in intraocular surgery for filling an intracapsular space
(3) after removal of a native lens body (2) from a lens
capsule 13 of an eye,

 wherein the filling of the intracapsular
10 space (3) accompanies the introduction of a lens implant
(12) manufactured from suitable non-cellular structural
transparent material into a posterior portion 3 (b) of
the intracapsular space (3) replacing a posterior portion
(2b) of the lens body (2) and wherein the volume of the
15 lens implant (12) amounts to at most 40% of the volume of
the lens body (2),

 wherein the introduced volume of the filling
composition (15) together with the volume of the implant
(12) provides for reconstitution of a volume essentially
20 corresponding to the volume of the native lens body (2),
which was removed or of the volume of a native lens body
(2) with an average size and

 wherein the capsular filling composition (15)
is of an aqueous composition and is devoid of non-cellu-
25 lar structural material or components thereof for re-
placement of lens fibers.

 10. Capsule filling composition (15) for use
in intraocular surgery according to claim 9 comprising
30 cells which are capable of developing lens fibers which
in particular are obtained from a probe of an eye, more
particularly from a probe comprising lens epithelial
cells (4).

35 11. Capsule filling composition (15) for use
in intraocular surgery according to one claims 9 or 10,
wherein the cells are derived from an autologous or a

heterologous human eye or from a non-human eye in particular from a non-human mammalian eye.

12. Capsule filling composition (15) for use
5 in intraocular surgery according to one of claims 9 to 11, wherein the filling composition (15) comprises ingredients selected from:

- hyaluronic acid,
- an anti-TGF β blocking agent,
- 10 - a growth factor, in particular one or several of: a fibroblast growth factor, including FGF-1 and FGF-2, epidermal growth factor (EGF), platelet-derived growth factor (PDGF), insulin growth
15 factor I or II (IGF-I or IGF-II)
- a retinoid

13. A kit comprising a lens implant (12) according to one of claims 1 to 8 and a capsule filling
20 composition (15) for use in intraocular surgery according to one of claims 9 to 12.

14. A method for providing an intraocular lens implant (12) according to one of claims 1 to 8 or a
25 kit according to claim 13 comprising an intraocular lens implant (12) and a capsule filling composition (15) for use in intraocular surgery after removal of a native lens body (2) comprising the steps of

- a. providing results of measurements of an eye or taking
30 measurements for providing such results selected in particular of measurements
 - of dimensions of the eye, in particular of a lens 1 or a cornea 10, or of the length of the eye along a visual axis 11,
 - 35 - of an optical power of the eye, in particular of the lens 1 or the cornea 10

- of a curvature of a posterior surface of the lens 1
or of a radius of curvature of a posterior surface
of the lens 1, in particular along the visual axis
11 or within the vicinity of the visual axis 11 of
the lens 1
and
 - b. selecting an implant according to one of claims 1 to 8
based on the results of step a.
15. The method according to claim 14 of
providing the kit according to claim 13 comprising an in-
traocular lens implant (12) and a capsule filling compo-
sition (15) for use in intraocular surgery wherein in an
additional step the ingredients of the filling composi-
tion 15 are adapted, in particular adapted by addition of
autologous or heterologous living cells and/or by addi-
tion of an ingredient, in particular selected from:
- hyaluronic acid,
 - an anti-TGF β blocking agent,
 - a growth factor, in particular one or
several of: a fibroblast growth factor,
including FGF-1 and FGF-2, epidermal
growth factor (EGF), platelet-derived
growth factor (PDGF), insulin growth
factor I or II (IGF-I or IGF-II)
 - a retinoid.